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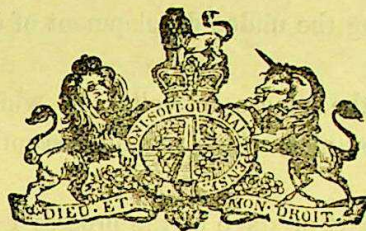
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BREWING & FERMENTING
Preser'g Beer & Wine

RECORDED



A.D. 1866, 28th FEBRUARY. N° 615.

Beer and Alcoholic Liquids.

(This Invention received Provisional Protection only.)

PROVISIONAL SPECIFICATION left by Hector Auguste Dufrené at the Office of the Commissioners of Patents, with his Petition, on the 28th February 1866.—A communication from Monsieur Charles Tellier, residing at No. 21, Rue Boulamvilliers, Passy, Paris, in the Empire of France.

I, HECTOR AUGUSTE DUFRENÉ, of the General Patent Offices, 10, Rue de la Fidelité, Paris, in the Empire of France, and 4, South Street, Finsbury, London, Civil Engineer, do hereby declare the nature of the said Invention for "IMPROVEMENTS AND NEW APPLICATIONS IN THE MANUFACTURE OF BEER AND ALCOHOLIC LIQUIDS," to be as follows, that is to say:—

The Invention communicated to me consists in the means of cooling liquids for the purpose of checking or retarding their fermentation, and consequently permitting of the manufacture of beer and other alcoholic drinks during hot weather. The development of heat which takes place in the manufacture of alcoholic liquids has a tendency to change the natural working of the fermentations; disturbances ensue, which produce a great loss of saccharine matter and consequently a decrease in the production of alcohol. The object of this Invention is to obviate this defect. For this purpose I act on the liquids in course of preparation at three different stages of their manufacture —

Firstly, by bringing the must down to a very low temperature, say, to about 40 degrees Fahrenheit, previous to fermentation.

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Secondly, by preventing the undue development of caloric during fermentation.

Thirdly, by cooling the places or cellars in which are stored alcoholic liquids, especially beers or ales, which remain susceptible of undergoing fresh fermentation.

To carry out the first part or stage of the process I cause the liquid to pass through an apparatus consisting of a number of small tubes, around which I place methylic ether or some other volatile product. Under the influence of the heat emanating from this liquid the vaporisation of the volatile substances takes place. A force pump compresses the vapours thus formed, which are condensed in a serpentine tube surrounded with cold water, when being again liquefied they return to the evaporator and again reproduce the same effects.

To carry out the second part or stage of the process, videlicet, operating on the liquids in fermentation, the operation is more simple. A recipient of a suitable form (a worm or tube) is immersed in the fermenting vat; this recipient is in communication with a serpentine tube surrounded with well water; the air is expelled from the before said apparatus filled with the aforesaid volatile liquid. Under the influence of the cold water circulating around the serpentine tube there is a continuous movement (produced by the evaporation of the volatile liquid) of the caloric in the fermenting vat in the direction of the current of cold water, thus the temperature becomes equalised between these two parts of the apparatus, and colder the water more the fermentation is checked. This result can also be obtained by cooling a current of water and causing it to pass in tubes through the fermenting liquids. The apparatus referred to in describing the first part of the process may be used for this purpose.

To carry out the third part or stage of the process, videlicet, the cooling of the cellars in which the alcoholic products are stored, the cooling apparatus is constructed of such dimensions as to allow air to be forced through it by means of a ventilator. The air in thus passing through is cooled down to about 34° or 36° Fahrenheit, and is then projected into the cellars where it absorbs the obnoxious heat; it is again taken by the ventilator either as it is or mixed with some exterior air; the ventilator forces it again to pass through the apparatus, thence into the cellars, and so on, so that a current of cold air is kept up which maintains the required temperature. A current of very cold water can also be directed into these rooms or cellars and scattered directly in extremely small jets into the atmosphere, or spread on sheets placed over the casks which are to be kept cool. The cold water in this case is always

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supplied by the cooling apparatus before described, but I consider the use of cold air preferable. When a current of air is to be distributed in several cellars an automatic regulator is placed at each air opening in such manner that the fluid regulates its own emission according to the heat of the com-
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LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1866.